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ABSTRACT

Criteria for establishing a project management plan for local community development of forestry programs in Africa are provided in the lead article, which elaborates upon approaches for encouraging participation in fuelwood production, determining community needs and responsibilities, assigning technical support personnel, and revitalizing rural communities through forestry projects. Additional articles in this issue describe the effects of radio on rural teachers in Nepal, data gathering techniques for assessing community energy needs, a profile of the recent shift in focus from complex to simple media at the Xavier Institute of Communications in Bombay, and an experimental question/answer service at the African Institute for Economic and Social Development in Abidjan. Also included are reviews of current offerings in educational literature. (MER)

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COMMUNICATION AND ENERGY:

COMMUNITY PARTICIPATION IN FORESTRY PROJECTS

by

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Communication and Energy: Community Participation in Forestry Projects

by Marilyn W. Hoskins

In Africa, as in much of the developing world, wood is the major source of fuel for cooking and heating in the vast majority of homes, and the supply of wood is dwindling dramatically while demand is increasing. Example after example shows that the common top-down approach to forestry is not able to keep pace with the increasing demand for wood fuel. Not only is the demand too great and generalized for government agencies alone to fulfill, but successful efforts to produce local fuel in ways that protect or reconstitute a healthy environment require support from local people. This awareness, along with the new emphasis of many international donors on local participation in defining and solving local problems, has created a new interest in combining forestry technology with community development in a new field called "forestry for local community development," or FLCD. FLCD includes not only raising trees but processing and using tree products—in this case all of the processes from the seed to the cooked dinner.

The basis of FLCD is community participation. If residents do not participate in designing a project, it risks being inappropriate to address local needs; if they do not participate in implementation, the trees probably will not survive; if they do not participate in receiving benefits, the project is meaningless. The main problems in FLCD are how to insure local participation from the beginning to the end of the project and how to provide appropriate technical and managerial support to assure that programs will be successful and will benefit those who participate.

A typical problem that illustrates the need for local support of forestry projects is the control of bush or forest fires. During a one-week visit into the Casamance area of Senegal in early 1979, an FLCD team from the Food and Agriculture Organization of the United Nations (FAO) observed fires in four different national reserves. In only one case were neighboring people helping to control the fire; they were paid workers from an endangered forestry nursery fighting the fire under the direction of their forestry supervisors. One of the fires had obviously spread from a nearby village. Because there is a local law that requires villagers to help fight a fire spreading from their village, the angered foresters talked of enforcing a "work day" for all of the male villagers as their punishment for not helping. Meanwhile, the women of the village continued washing their clothing, and the men stood by repairing farm tools and chatting among themselves as the foresters battled the blaze.

The region in which all four fires took place had been the target area of an intensive foreign assistance program on community involvement in fighting fires: many residents had seen films, schoolchildren had heard lec-

(continued on page 2)

In this issue . . .

Community Participation in Fuelwood Projects 1
Power for Radios in Nepal 1
Assessing Community Energy Needs 3
Photovoltaic Power for Earth Stations 6
Big Media vs. Little Media in India 7
Communicator's Checklist 8
African Question & Answer Service 10
On File at ERIC 14
Graphic Thoughts 15
Dilemmas in Country X 16

Radio Reaches Rural Teachers in Nepal—but Do They Have the Energy to Turn It On?

Radios are found almost everywhere in the developing world and are thus invaluable for delivering educational messages of all kinds to the most distant corners. Radios also require high-quality electrical energy to power them. Although much of the world's population can get electricity through the distribution system of electrical power plants, much of the rural population in developing countries lives beyond the power lines and must depend on other forms of electrical supply for their radios, forms such as batteries and solar cells. An educational project in Nepal recently gave some attention to solar cells as an alternative to the more common dry cell battery for use in radios. The results will be helpful to many who are considering the use of solar power in similar projects.

The Nepal project is essentially a distance teaching project. In 1971, the government of Nepal adopted a National Education System Plan, one goal of which was free and compulsory education in grades one, two, and three. The shortage of trained primary teachers has made this a difficult goal to attain. By 1977 there were over 9,000 primary schools with a combined enrollment of 769,049 students—69 percent of Nepal's primary school-age children. Unfortunately, many of the teachers in those schools are untrained or undertrained. With less than a tenth-grade education, many are unable to meet certification standards.

Having identified the upgrading of primary education as one of its greatest needs, the government of Nepal had to find ways to train its teachers. The country's mountainous terrain and lack of roads make it difficult for rural teachers to travel to residential teacher training centers, and even if they did, the number of higher-level teachers who could provide teacher training instruction is limited. The solution to this dilemma seemed to

(continued on page 5)

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(continued from page 1)

tures and drawn posters, and a number of villages had been given back-tanks for fighting fires. However, as anyone who has fought a bush fire can testify, fire fighting is a hot, dirty, uncomfortable business, and residents are not likely to get involved voluntarily unless they can clearly see that they have something personal at stake. The four fires in question were in what residents considered "foresters' lands," clearly not their own domain or responsibility.

If African nations are to solve their energy problems, then they will have to find alternatives to top-down projects. Local energy problems cannot be isolated from localized basic needs and priorities; successful projects require local input into their planning, and broad local support for their duration. Fuelwood production, transformation, and efficient utilization need to be guided by the bottom-up or FLCD philosophy.

Participation and Fuelwood Production

The decision to include local people in the design, implementation, and benefit-sharing aspects of fuelwood production projects raises a number of issues that have not been considered important in traditional industrial forestry. It calls for reorienting goals and expectations; redesigning training, technical packages, and managerial support; and a new type of commitment on the part of donors, technical support agents, and local residents.

Unfortunately, there is a lack of experience in FLCD on the part of both host country foresters and expatriate forestry advisers. Other than some community ownership of local woodlands in Switzerland, Austria, and the Scandinavian countries, there is little European or American experience with locally planned, locally implemented, and locally managed forests. (This might explain why the Swedes and Swiss are in the forefront of many FLCD efforts.)

A demanding and rigorous education in forestry has given many upper-level European and African foresters a sense of elitism. Their training stresses rule enforcement and includes military training, but seldom includes courses in sociology, community development, or extension methods. Rural Africans may have more contact with foresters than with most other government officials, but these foresters are usually in uniform, often armed, and frequently feared.

It is not surprising, therefore, that early attempts at community forestry have suffered from a lack of clarity regarding the philosophy of FLCD, a lack of effective techniques for carrying it out, and a difficulty in communication creating frustrations for the various actors involved. There is a need, it seems, to underscore what the FLCD approach offers to each of the three participating groups—community residents, foresters, and donors—and what they must contribute in return. There is also a need to examine ways in which these rewards and responsibilities can be made clear from the beginning of a project.

Community Needs and Responsibilities

If community residents agree to participate in an FLCD program, they have the right to help design a program that complements their other essential activities. Once they have learned about required inputs, risks, and potential benefits, they can select the best options, to be implemented with appropriate technical and managerial support. They also have the right to receive benefits they value in return for their work.

The subject of benefits and incentives is probably the most difficult to address, but it is at the heart of motivating participation. In places where wood is still available as a "free good," it is almost impossible to interest villagers in projects that are strictly firewood oriented. Other desirable program options, such as including various species valued in the community (fruit- or income-producing trees) along with trees that supply fuelwood, will be needed to attract participation.

Even in communities where fuelwood is a problem, it is never the only need. Forestry programs will interest participants only insofar as they also address other perceived needs —improved crop production, added food or forage, a source of income, environmental improvement. Programs must be tailored to the appropriate people, depending on local interests, property ownership, land availability, social structure, and work patterns. In any type of program, the potential benefits and their eventual distribution should be clearly understood before work begins.

In many countries there are individual or village requests for more seedlings and technical support than the forestry service can currently provide. However, in other areas, the forest service or donors see the need for forestry projects but local residents do not. For example, foresters may wish to start programs for erosion control to benefit distant areas, or for fuelwood for urban centers or future use. If the project cannot be designed so that local residents see benefits they value coming to them, they will need other incentives. One experienced project designer reports that in harsh environments requiring lengthy growing periods for trees, residents will opt for other uses of time and land unless they are paid for planting trees. However, payment for planting trees may have negative results: participants paid to plant trees may assume that the project manager or government owns the tree, and will fail to maintain it; or, after hearing of a project paying participants in a neighboring village, residents may refuse to participate in their own community project unless they are also paid.

In Senegal, one project paid farmers a small amount each year for three years for each living tree. They found that the survival rate was almost 100 percent, compared to about 20 percent in another project in which they paid farmers only to plant the trees. In India, a forestry project gave land to unemployed and landless people and paid them to plant trees. Every year the project gave each person who had maintained his trees more land to plant. When the trees were grown the participants received a percentage of the harvest and retained the land.

Several countries have volunteer programs, especially for consciousness raising, that work with varying degrees of success. In Dakar, Senegal, during the Day of the Woman, women planted trees around a new social center. In the Gambia, trees were planted along the roads during a tree planting day. As frequently happens, trees near the houses were cared for and lived, the others died. In Kenya there is a program in which city dwellers pay for a tree to be planted in a village and hire a handicapped person to care for it. In Senegal, Boy Scouts and some school groups help with forestry projects every summer. Some countries such as Tanzania have minimum community participation requirements that may be applied to forestry programs. Efforts to publicize such projects help to educate the populace to the importance of trees and the environment. However, volunteer programs are only as good as the technical and management supports permit. Results can only be disheartening unless they are planned and organized with care and receive appropriate follow-through to ensure their success.

When community members participate in FLCD programs, they need to consider not only the benefits and supports due to them, but their own responsibilities in making the project successful. Necessary inputs required of the participants for both beginning and maintaining the project should be clear and agreed to before the project begins.

Technical Support Personnel

Foresters and extension agents also have rights and obligations in FLCD projects. They need to find FLCD work successful and rewarding, and they have the right to have their position and responsibilities clear and realistic. They should not be left with a program for which there is not adequate personnel, material, or logistic support. A liberal amount, perhaps 20 percent of each project budget, should be dedicated to education of personnel and development of appropriate materials. Donors should work with national level services to improve communication and

(continued on page 11)

Assessing Community Energy Needs: Data Gathering and Dialogue

by Mary Elmendorf

In any given society there are unknown or poorly understood sociocultural factors that have a direct bearing on the ways in which planning and policy determinations can be designed and implemented. Horror stories abound with respect to large and small development projects that have failed because some apparently insignificant cultural factor was either unrecognized or ignored. It is, in fact, rarely possible to design projects or to arrive at useful policy guidelines affecting the daily lives of people in traditional societies without having detailed information regarding the perceptions such people have of themselves: their value systems and priorities, their fears and aspirations, and their customs, traditions, and taboos. The purpose of this discussion is to highlight some techniques that might be useful to planners in gathering baseline data for the assessment of community energy needs, taking into consideration the importance of sociocultural concerns.

Background

Existing inventories of community energy needs and resources are woefully inadequate for the requirements of planners and program designers in the developing countries, particularly in rural areas. In his excellent review of traditional and nonconventional energy sources in the developing world, David Hughart notes that there is evidence of

> widespread shortages of the traditional and nonconventional fuels on which an estimated one-half of the world's population relies for cooking and other energy needs. Collection of these fuels, which include firewood, charcoal, dung, and the inedible portion of agricultural crops, has become in some areas an important demand on the labor and cash resources on which agricultural development depends. Estimates of traditional fuel supply and demand are presented, but the data base in this field is too weak to allow much confidence to be placed in them.[1]

Lack of adequate information may well result, in part, from the lack of recognition by villagers of what constitutes an "energy" factor in their daily lives. While most of them are aware of the need for fuel, for example, few would recognize the "energy" factor involved in the time and *human* effort required to gather or cut wood. Nor would similar efforts required for drawing and hauling water be singled out as energy until, perhaps, the advent of electricity, pumped water, and home distribution suddenly dramatizes the amount of time and energy freed for use by the women and children who had previously provided the water.

Similarly, the connection between electricity and increased productivity of craft items for cash income may not be noted immediately, but the extended time available for such work ultimately will result in observable change, and in so doing will bring up the question of the tradeoff between electricity costs and increased income.

The changing relative costs and degrees of availability of energy sources and usage systems in less developed communities are difficult to quantify, but their effects are readily apparent. There is, for example, a tendency for traditional sources of energy for agricultural work—draft animals and beasts of burden—to be replaced by more modern technologies when forage becomes limited or when the change is made to seem attractive. Often, however, the apparent benefits of the modern technologies prove to have more hidden costs and fewer corollary benefits than the traditional source—benefits such as fertilizer, hides, and milk. As the costs of obtaining energy from the new systems escalate, the benefits of the more traditional systems may be reconsidered.

Community energy needs, resources, and uses thus constitute a special form of interactive dynamic, difficult to quantify, and almost always responsive to community value systems that are themselves not always easy to determine. Our aim here is to explore some of the techniques for determining what these factors are and how they can be interpreted and used for planning purposes.

Social Science and Energy

The social science methodologies needed to obtain data on behaviors, attitudes, and social organization related to energy are in some ways less difficult to implement than the "software" components for projects involving, for example, water supply and excreta disposal or contraceptive usage, as the latter often involve taboos or matters of a highly personal nature. Energy needs and resources, on the other hand, are more complex and interrelated, and therefore must be viewed in a holistic way within the environmental setting, the sociocultural context, and the changing economic systems.

> Energy production in a village ecosystem is highly dependent on agriculture. The village energy system tends to be a tight subsistence economy, in which little material output is wasted and most energy is produced and used locally. A change in the number of livestock or the ratio of grain to straw (as in the introduction of high-yielding varieties) could upset the balanced subsistence village energy economy, which uses dung and straw. Labor availability for peak agricultural seasons will be affected by time needed to collect fuelwood. Draft animals provide pulling energy and dung, and consume straw. Dung used as fuel rather than fertilizer affects soil fertility; and housing and cattle fodder compete for crop residues used as fuel. Conventional surveying does not take into account the complexity of these relationships.[2]

The social science techniques that have been found most useful in determining existing attitudes and practices, as well as in designing more acceptable and effective projects, are those in which the local people have been most involved in the identification of the community's felt needs and priorities. When problem-solving approaches involving extensive community participation are substituted for or used in addition to standard social science techniques such as structured questionnaires, the result is dialogue between the community users and the agency facilitators or social scientists involved in project promotion and research. Much more data is generated than simply answers to preconceived questions.

Face-to-face communication raises awareness of present practices and alternative opportunities and defines problems and priorities. Ultimately, joint analysis by the community and the social scientists or development agency leads to a greater understanding of needs, resources, and alternatives.

The field methods used to achieve this dialogue must be flexible enough to relate to local populations, agencies, and research personnel and to the overall situation and research data needed. A holistic approach that takes into account the perceptions of the environment by the people (as individuals and as a part of a cultural group), along with those of experts and officials, is suggested as suitable.

In her excellent study, *Guidelines for Field Studies in Environmental Perception,*[3] Anne Whyte has listed 24 field methods, most of which are potentially useful in analyzing energy needs, uses, and resources in developing countries. Along with full discussion of the techniques, she has indicated time and training requirements, including indications of methods that can be carried out by assistants trained in the field. System variables are indicated, along with notations as to whether these techniques are applicable to literate or nonliterate populations and tolerant to local variations in format and procedure. References to survey literature on the different methods make it possible to evaluate more thoroughly the most appropriate technique for a given situation.

Basic Approaches to Field Research

As we evaluate various field techniques designed to promote an understanding of energy use and supply in the daily lives of people, it is important to be mindful of the fact that there is no ideal or best method. The various techniques have disciplinary over-

(continued on page 4)

(continued from page 3)

tones and complexities that tend to confuse the picture in transdisciplinary, international research. Nearly all data-gathering techniques, however, are based on a combination of three main approaches—observing, asking questions, and listening—that are or should be mutually enriching and complementary.

Observing

The first approach to gathering data is observation. Observation can be direct or indirect, structured or unstructured, and there are various specialized observation techniques. Observing actual behavior is a basic tool for understanding energy needs and uses, especially within the context of household economies. Public behavior is, of course, much-easier to observe and analyze than are practices within the private sphere.

Along with community knowledge, practices, and beliefs, which questionnaires may reveal, there is a need for detailed information on individual behaviors, attitudes, and hopes. Ethnographic data highlighting some of the more intimate household routines and energy uses can be obtained through indirect observation, indirect questioning, and participant observation. The key informants here would be the women, who make the decisions regarding the household economy.

Participant observation, which encompasses observing, listening, and asking questions, used to be considered primarily an anthropological method for understanding foreign cultures, but it is being used more and more as a tool for obtaining valid data and can serve as an adaptable method for field investigation of energy uses. In participant observation, the researcher lives with and participates in the daily life and activities of the people being studied. As a specialized technique, participant observation is less concerned with tools for handling data after they are collected than with obtaining valid data.

Understandably, the researcher's own perceptions and experiences condition the collection and interpretation of data. Nonetheless, foreign expatriate researchers have some advantages over social scientists working in their own cultures, because, as Whyte suggests, "they can reasonably maintain an attitude of ignorance and naivete which enables them to ask simple questions and to repeat them in the manner of a child seeking information." Expatriates working alone without local counterparts can get false or partial information. Sharing information with colleagues and participants is thus essential from the point of view of improving individual research results, as well as from a code of professional ethics.

Behavioral mapping is a simple and reliable technique of observing and recording specific behaviors in relation to specific locations. This technique was used in one project to determine relationships between water use and defecation patterns in order to identify possible reuses of grey water and culturally acceptable locations for bathing, laundry, and latrine facilities to maximize health and sanitation. Similar observation could be a useful device for analyzing daily energy needs, resources, and available options.

Map-making, the actual preperation of a wall map, noting households, streets, and community resources, is an extremely useful tool. In Chan Kom, a remote Maya village of 650 people, the students in the sixth grade social science class, together with their teacher and the researcher, conducted a household survey and prepared a village map showing existing electricity and water services and house types. The map is still used by the mayor and the teacher, as well as by outside agencies, as a basis for planning. In fact, villagers used the research data and map to develop a proposal for improved housing, for which they received a government grant.

The techniques of *pictorial analysis* and *sorting* were used by the director of a successful integrated rural development project in Colombia to resolve difficulties between the villagers and an interdisciplinary research team. Selected villagers were requested to sort photographs of the community into categories of needs or priorities, and then to arrange them in order of priority. Although the villagers categorized the needs and problems somewhat differently from one another, parallels could be drawn with respect to their priority listings. When this same task was assigned to the professionals, they sorted things in very different categories, according to their disciplines. Most significant, however, was the fact that their understanding of the priority needs of the village were very different from those of the villagers. The comparison of the two interpretations provided an excellent tool for self-analysis on the part of the staff and a new understanding of the need to give a high status to village priorities.

Asking Questions

Another important data-gathering approach is *asking questions*—conducting interviews and surveys. In a series of World Bank case studies on appropriate technology for water supply and waste disposal, structured interviews with local leaders, adapted to the local situation, were used successfully in one village in Guatemala.[4] In another village, a more open-ended, unstructured schedule was administered to obtain information from leaders and innovators. The dialogue of the interviews in both villages gave the leaders an opportunity to explain local needs and resources as they viewed them and to discuss possible alternatives, including past projects that had been unsuccessful.

The interview becomes an exchange of information and not just an extractive process. In interviews with knowledgeable people such as midwives, healers, and storekeepers, new clues to problems, needs, and resources often surface, sometimes more basic to reality than the information of the formal community leaders. Interviews of selected families or categories of people, such as mothers, can be extremely useful if conducted over a period of time, so that specific subjects of interest can be explored in depth.

The important thing to remember in all interviewing is to record the interview in full, using the language of the respondent when possible. Taping is a useful tool, but is not always appropriate during the interview session. If sociological surveys are needed, they should be based on the results of the preliminary interviews and on prior observation, and should be designed in local terminology and categories meaningful to the people.

Listening

An important listening technique is *oral history,* a method of recording answers to open-ended questions concerning a single topic or specific topics. With good rapport and sufficient time, material collected in this manner has high validity and is less researcher-dominated than most. Historical material on past programs can be secured in this way, including political implications and agency fiascos as remembered by the villagers. This technique is particularly useful with the elderly.

In fact, talking with the elderly often taps the wisdom that formal science has been unable to unlock.

> In Kenya, foresters and other authorities . . . have stated that it is impossible to propagate the valuable indigenous tree, *mugaa* . . . which is a prized local hardwood tree. . . . We asked an old man, who looked at us pityingly and said, "Why, every uncircumcised herd-boy knows how to grow a *mugaa.* The seed must be chewed by a goat and after it has passed through the goat's intestines, you pick up the seed from the goat droppings, and plant it. And then it will grow."[5]

He was correct.

Informal listening, particularly listening to schoolchildren, can add new insights to research efforts. A more structured approach to recording children's perceptions can also be useful. According to Whyte, the periodic reports of over 15,000 selected schoolchildren on their observations regarding the presence of certain lichens added depth to an environmental study in Britain at very little cost. Listening to statements that are not answers to structured questions can be vital to the data-gathering process; often we do not know the questions to ask.

Conclusion

As noted previously, there is no single best method for gathering data, nor are the more sophisticated research instruments designed primarily in the language and categories of

(Continued on page 14)

(continued from page 1)

be radio, as it could provide the instructional content for teacher training.

The government of Nepal therefore began working with the U.S. Agency for International Development (AID) to design a project to procure the facilities and prepare staff to produce radio programs and self-instructional materials for a large-scale teacher training program—the Radio Education Teacher Training Program. Southern Illinois University at Carbondale, under contract to AID, is helping Nepal develop its expertise in radio education.

During the project's pilot year 1980-81, emphasis is on staff development and the preparation of radio scripts and self-instructional materials. One hundred teachers are participating in this phase of the program. The year-long training program is expected to reach 1,000 teachers in 1981-82 and 2,500 in 1982-83. At that point, the educational program may be expanded to reach other target groups in Nepal.

The plan for the formal year-long program includes an opening two-week orientation workshop, 10 months of formal radio instruction, visits to the schools by specially trained field supervisors, and a four-week summary workshop. The 10 months of formal instruction are divided into two-month segments, each segment consisting of six weeks of radio instruction, one hour a day, six days a week. Each six-week instructional period is to be followed by several days of face-to-face instruction at a workshop center, to which teachers will travel, usually by walking for several days.

Power for the Radios

As plans for the radio education project were being developed, the question of the most suitable power source for the radio receivers was raised. Although the number of hydroelectric plants in Nepal is increasing, it will be years before electricity is generally available in the rural areas. Further, per capita income is only $122, so the cost of batteries to operate the radios cannot be taken lightly. Project planners therefore developed a series of research studies to explore the cost and feasibility of using solar cells connected to lead-acid batteries, and the costs involved in using various brands of dry cell batteries available in the local market. Field work has also been conducted to determine whether teachers and district education officers are able to assemble the solar cell power packs properly and connect them to the radio.

Project Hardware

The radio receivers used in these studies were the ones selected for general use in the Radio Education Teacher Training Program. The receiver, designed for a UNICEF project and manufactured by ITT, is a 9-volt radio designed to use six "D" size 1.5-volt dry cells. It also has an external jack for 9-volt direct current input.

The solar cell pack that was tested uses a solar cell rated with a maximum output of 12 volts. Manufactured by Solarex of St. Louis, Missouri, it was designed to be mounted on a pole or other firm surface. This solar cell was connected to a sealed lead-acid rechargeable 8-volt battery, manufactured by Gates Electric. The cost of the solar cell panel and the battery, delivered in Nepal, was U.S. $183.57.

Various brands of "D" size, 1.5-volt batteries were used in the studies, with six batteries providing the required 9 volts to operate the radio. The costs listed below are April 1980 prices. (Note: 12 Nepalese rupees = U.S. $1.00.)

Brand	Cost	Battery Life	Cost/Hour
Eveready 950-1R20	Rs 3.00	202.3 hours	Rs .0157
Eveready Leakproof	Rs 3.50	306.7 hours	Rs .0114
Toshiba Anand Yellow	Rs 3.50	292.7 hours	Rs .0116
Toshiba High Power	Rs 3.25	308.7 hours	Rs .0105

Testing the Solar Cells

The question of Nepal's terrain and weather and how they would affect solar power generation was a major one requiring investigation. Nepal consists of three main geographic areas: 1) the terrain next to India, with an elevation that ranges from 100 to 1,000 feet; 2) the middle hills, with a range in elevation from approximately 1,000 feet to 11,000 feet; and 3) the high mountain areas, with peaks ranging from 11,000 to over 29,000 feet. Nepal lies between 26° and 30° north latitude and is known for its bright, sunny weather. The monsoon season from late May to late October does include frequent rain, but the days are characterized by broken clouds. Solar cells are thus a realistic possibility for this country as a source of power.

The solar cell panel was demonstrated as fully operative at three different elevations in Nepal: 300 feet, 4,500 feet, and 9,000 feet. The watt hours produced to charge the battery ranged from .000 to 1,040, with variations depending on time of day, cloud cover, and the condition of the lead-acid battery. There appeared to be no significant difference in power produced based on differences in altitude.

The manufacturer of the solar cell panel indicated that it should be oriented at a 45° angle with the horizontal and pointed directly south. No discernible difference in the amount of power generated was noted when the orientation of the solar cell was varied by plus or minus 10° from this recommended position. When the solar power unit was properly connected, it was able to provide sufficient power to operate the radio at all times. In one experiment, the lead-acid battery was charged sufficiently to maintain the operation of the radio receiver for as much as 10 to 15 hours per week for more than a year.

The complete unit—solar power panel, lead-acid battery, and radio receiver—was delivered to each of 16 listening posts located throughout the country. Eight of these listening posts reported that the radio operated properly and that they received Radio Nepal over a continuous two-week period. Four listening posts reported a malfunction in the equipment. In two of these situations the radio, battery, and solar cell were not wired together properly. (It is possible to burn out the solar cell unit if it is wired to the battery backwards.) Four additional listening posts failed to send in a report.

Two separate field tests to determine whether local school personnel could connect the radio, solar panel, and battery revealed that people did have difficulty assembling the three pieces of equipment. Although they could be taught how to do this, it is apparent that the general population is not readily familiar with the use of radios and separate power sources. Although radios are becoming more common in the rural areas, they are operated using dry cell batteries.

Pros and Cons of Solar Cells

The tests demonstrated that the combination of the solar panel and lead-acid battery is able to provide long-lasting, trouble-free power for operating a radio receiver over a long period of time for both daytime and nighttime reception. The solar panel is judged to have a mean life of 20 years and the battery a mean life of 5 years. If the solar source were selected, it could easily operate a radio 14 to 16 hours a day or even more for up to 20 years.

Several points should be made about solar cells, however. The solar cell panel operates best when permanently installed. The lead-acid battery must be kept charged, and a stored battery loses its charge very quickly. The solar cell must also be properly connected to the lead-acid battery so as not to damage the solar panel permanently. All of this means that the solar cell power source works best when the total unit is located in a fixed location and the battery is being continuously charged. This is considered a disadvantage for the Nepal project, where it is expected that the teacher will want to listen to in-school educational broadcasts at his or her

(continued on page 6)

(continued from page 5)

school and then take the radio home to listen to the teacher training program in the late afternoon. It is also anticipated that the teacher with a radio may be invited to bring the radio to the home of a friend to listen on occasion. This is good educationally, but it means that the cumbersome power source of solar cell and external battery will make such a move difficult. The process of reassembling the equipment increases the possibility of its being damaged.

Dry Cell Batteries

The 9-volt radio selected for the project uses six dry cells which are placed inside the radio case. Any brand of "D" size 1.5-volt battery may be used, and several brands are available in Nepal. At least one brand was available in each community that was visited by a representative of the Radio Education Teacher Training Project. It is anticipated that an increasing supply of dry cells will continue to be available throughout the country because of their increasing use to power flashlights and radios. A survey of lower secondary school teachers revealed that over 50 percent of the teachers owned their own radios. This included teachers from every section of the country, and this percentage did not vary much from one section of the country to another.

Pros and Cons of Dry Cells

Dry cells have the advantage of being easily inserted into the radio, and they provide a ready source of power at relatively low cost. Since the radio with dry cells is portable, a teacher could listen to the in-school educational broadcast and then listen to the program for teachers on the way home or at home.

The longest time any of the batteries lasted in the tests was 343 hours, in a study where the radio was operated only 6 or 7 hours per week. This would be twice the number of hours needed for listening to a full year of the teacher education programs, as the plan is for 150 such programs in a year. Yet it is realistic to recognize that teachers would probably listen to the radio much more than for the required teacher education program, and that two and possibly three sets of batteries would be required for each year. The question is whether the teacher would have the money when it was needed to replace depleted batteries and not miss any of the radio broadcasts, and whether the local market would always have batteries when they were needed.

In the Radio Education Teacher Training Project, the teacher would be supplied with a radio and fresh batteries at the beginning of the broadcast year. It would even be possible to supply funds for the teacher to purchase an additional set of batteries. Teachers might be told that this should be sufficient for the regular educational programs, and that they would have to bear the expense of additional batteries if they wished to listen to the radio beyond 12 to 15 hours per week.

Comparative Costs

The per-hour cost of the solar cell and lead-acid battery combination is difficult to assess accurately, as the cost is the same per year regardless of the actual amount of radio listening time each day. But using some assumptions, comparative costs between the dry cells and the solar power units can be made.

By assuming a maximum listening day of two hours a day, six days a week, 52 weeks a year, one could be assured that the teacher could listen to the Radio Education Teacher Training program, the in-school educational program, six news broadcasts (15 minutes per day), and at least one special broadcast each week. This total of 12 hours per week, or 624 hours per year, could be met by two sets of batteries costing 21 rupees per set or 42 rupees per year (about U.S. $3.50).

The solar cell and lead-acid battery combination would cost a total of 2,184.50 rupees (about U.S. $183) for the initial solar cell and first battery. One then needs to figure the cost of three additional lead-acid batteries that would be needed if the solar cells were used for a mean life of 20 years and each battery had a mean life of 5 years. Thus, the total cost of the solar cell and lead-acid battery combination for 20 years is 3,245 rupees, or 162.25 rupees per year (about U.S. $13.50).

One could purchase 7.72 sets of dry cells per year for the same projected annual cost of each solar power unit. Three sets of dry cells would provide for over 1,000 hours of listening per year, which should be more than sufficient for an average of three hours of listening per day. This would give teachers ample time for the regular educational programs and also for additional radio listening. This would still amount to less than half the cost of the solar cell units amortized over 20 years at 1980 prices.

If during the 20 years the solar power units were stolen or damaged, the replacement costs would add significantly to the power source costs. It can be noted that when the cost of the solar panel unit is amortized over a 20-year period, the annual cost is still more than 2.5 times the cost of dry cells when the radio is operated over 36 hours per week.

Conclusions and Recommendations

The surveys conducted in Nepal indicate that dry cells are more easily used by teachers in Nepal as the power source for their radios, particularly because they permit the use of the radio as a portable unit. The solar cell unit works best when it has been permanently installed, thus limiting the portable use of the radio. The dry cells are also more cost effective and are readily available in the local markets of the villages of Nepal. Project personnel recommended the use of size "D" dry cell batteries for the Radio Education Teacher Training Project, choosing brands that have the longest mean life in actual listening tests. At such time as the annual cost of solar cell units amortized over the expected life of the unit approaches the cost of three sets of dry cells, reconsideration should be given to the use of solar cell units. ■

This article was prepared from reports written by Jack W. Graham and Donald D. Paige of Southern Illinois University at Carbondale. For information contact the authors or William F. Morey at the Radio Education Teacher Training Project, Southern Illinois University at Carbondale, Carbondale, Illinois 62901, U.S.A.

Research on Photovoltaic Power for Earth Stations

The Rural Satellite Program recently undertaken by the U.S. Agency for International Development (AID) has become part of a photovoltaic research and development effort being conducted by AID's Office of Energy, in conjunction with the NASA/Lewis Research Center (LeRC) in Cleveland, Ohio. AID's Office of Energy has been working to develop solar power for equipment needed for various AID projects worldwide. One successful project that has resulted from this program is a solar-powered grain mill and water-pumping station in Upper Volta, a project that has attracted much attention. Presently under development is a photovoltaic refrigerator that will be part of the "cold chain" for managing vaccines in tropical climates. The Office of Energy and NASA/LeRC have agreed to make communications their priority for the next phase of the Photovoltaic Development and Support Project.

AID's Rural Satellite Program is a five-year program to demonstrate the application of satellite technologies to solving the communication problems that impede development efforts in rural areas of developing countries. The program has furnished NASA/LeRC with the power requirements of a typical small satellite earth station to be used in projects in several developing countries. The hope is that NASA/LeRC will be able to design a cost-effective photovoltaic power unit for the earth stations and thus permit cost savings in the operation of project earth stations.

For further information on either the research described above or on the Rural Satellite Program, contact Lawrence Frymire, Agency for International Development, DS/ED, Room 315, SA-18, Washington, D.C. 20523, U.S.A. ■

The Xavier Institute of Communications Moves from "Big Media" to "Little Media"

As development institutions grow, they frequently expand their capabilities to include media that are technologically more complex. Less common is the institution that expands from the technologically complex to the simpler media in order to accommodate a greater range of social *complexity. This profile of the Xavier Institute of Communications in India indicates that it has attempted the latter shift—not without difficulty.*

The Xavier Institute of Communications (XIC), located in Bombay, India, is primarily an educational institution that also invests to some degree in media production and research. As an educational institution, XIC conducts programs in media training. At the professional level, it runs evening courses leading to a diploma or a certificate in various branches of the mass media. At the high school level XIC conducts "Mediaworld," a brief course in communications for senior students. XIC's program to use the media for adult education is called "ASTHA," a Marathi word meaning "concern."

A metropolis such as Bombay is naturally the home of large numbers of the adult poor —"marginal" members of society who have had little access to formal education. Generally, these illiterate adults are either ignored or exploited by the mass media. Cinema, for example, functions quite effectively as a narcotic for such an audience. It was in this context that XIC asked: Can a program of media education for the poor serve to liberate rather than enslave them?

The Adult Education Project of XIC was initiated in 1974 when a group of students from the XIC broadcasting course proposed an experiment to see whether television could have an effect on improving the learning skills of adults with no formal education. With this purpose in mind, XIC contacted the Bombay City Social Education Committee (BCSEC)—a municipal organization that conducts literacy programs—and Bombay Doordarshan, the television broadcasting entity. Thus began XIC's investment in television for literacy.

From 1974 to 1978 two television series were broadcast to illiterate adults in Bombay City. After an intensive evaluation of the first series, the syllabus was widened to include not merely functional literacy, but social education as well—that is, concepts of health and hygiene, work and unemployment, nutrition and disease. Literacy was closely interwoven into the pattern of these social themes, but it was not the primary emphasis.

As the project expanded and attracted notice, strong pressure was placed on XIC to aim beyond mere social awareness to political awareness (or conscientization, after Paulo Freire). Through prolonged contact with adult education workers and adult groups, the consciousness of XIC was raised on two important points:

- Illiterate adults might not know how to read or write, but they frequently have a strong sense of social responsibility and of folk culture, and they are not politically naive.
- If education is a process of growth, then literacy must flow into more than simply information on social themes. Adults must be made aware of the political universe in which they live, so that they can begin to take charge of their lives. This inevitably leads to conflict with the opposing factions of society.

As the project expanded to encompass these ideas, the staff of XIC began to see that television was not as useful a medium in bringing about adult awareness as they had once thought. First, there were endless frustrating struggles between the bureaucracies of Bombay Doordarshan and BCSED (the two collaborating bodies on the project) and the idealism and energy of the XIC group. Second, television is by nature a mass medium, aimed at consumption by a mass audience, and tends not to promote discriminating thinking. Was it, then, the proper medium for conveying messages that were meant to encourage critical thinking? Third, if political awareness (conscientization) was an ideal for the adult education program, would a government-run, pro-establishment organization such as Bombay Doordarshan dare to broadcast critical programs?

These questions agitated XIC for a long time and were at least partly responsible for making it turn away from mass media and toward media that could effectively stimulate the critical awareness of the poor. If the mass media were a soporific, then group media—media proportioned in quality, expense, sophistication, and use to a group's experience—might well promote a participatory mode of learning, cooperating, and finally organizing for a better community.

It is important to make two points at this juncture. First, up to this time there had been a heavy emphasis on the *content* of the adult education programs, an emphasis that precluded proportionate attention to the media form. Much of the discussion at XIC had centered on conscientization versus literacy, on key words and their value, on the inadequacies of the old syllabus. Great emphasis was placed on the training of animators and on the creation of new centers where these animators could function in a "clean" situation, uncontaminated by faulty teaching methods. Much was invested in creating a network of new centers where XIC could put into practice a new methodology: the pedagogy of conscientization. Unfortunately, for whatever reason, a proper investment in group media was not undertaken at the same time with the same emphasis.

The second point is this: XIC is an educational institution, concerned with forming values, attitudes, and skills regarding the media. As such, its objectives are different from those of a social welfare organization, a resource agency, a commercial institution, or a sponsoring body. Inasmuch as its specific area of education is media and communications, it looks primarily to the *communications component* of each subject, asking itself how something can be communicated more effectively through the media or through communications skills.

Thus XIC made the transition from television to audiovisuals, from a medium requiring heavy investment to one proportionately less expensive, from mass-structured media to flexible, more specific group media, from video to slide shows.

Since July 1979 ASTHA has emphasized the production of slide shows along three themes —work and unemployment, health and hygiene, and reinterpreting folklore in modern, critical terms. These themes were selected on the basis of research conducted in the context of the earlier approach, adult education through television. All of the slide shows except one have been produced in color, with an accompanying soundtrack on cassette. The soundtrack is in either Hindi or Marathi, with an English script also available. Two suggestions are under consideration regarding distribution of the slide materials: either marketing them under XIC or forming an audiovisual archive with facilities for lending material to subscriber members.

As the audiovisuals have been produced, a valuable resource of print and pictorial material has been built up—a Photo-Bank. This collection of photographs on life in Bombay, particularly its slums and tenements, the workers and their social life, is used both for documentation and as an aid for teaching visual literacy.

ASTHA has also been working to develop a puppetry unit. Behind the diversity of media lies ASTHA's philosophy of "proportioned use," that is, the use of media that can promote the greatest possible participation from a group. The popular medium of puppets seemed to fit this concept well, so three or four members of ASTHA have invested their time in fashioning, scripting, and producing four skits using glove puppets. Their modest efforts have been quite successful.

If the production of audiovisual materials in various forms has been a positive achievement in recent months, the work of the

(continued on page 15)

A Communicator's Checklist

1 ***Participation, Learning and Change: Commonwealth Approaches to Non-Formal Education,*** edited by Paul Fordham (London: Commonwealth Secretariat, 1980) 223 pp.

Participation, Learning and Change is an effort to condense the presentations and meanderings of a Commonwealth Conference on Non-Formal Education for Development, held in New Delhi in 1979, into a coherent examination of the educational and development concepts, practices, issues, and solutions included under the non-formal education (NFE) rubric. The book is basically composed of excerpts from conference papers and project case studies, organized and connected by the comments and insights of the editor. Given the enormity of the topic and the diversity of views and experience of the presenters, Fordham is to be commended for capturing the richness of NFE experiences and describing many of the crucial elements and issues of NFE efforts in the developing world.

However, the excellent case studies, project descriptions, and model curricula scattered throughout the book do not overcome the book's main weakness, one inherent in conference proceedings: it too often lacks continuity of thought, sequential analysis of problems, and precision in the development of ideas. Sections of conference papers are interspersed with the editor's comments and incorporated into a superimposed organizational framework. This results in a mosaic of ideas and experiences in which the transitions from the editor's commentary to the excerpts from conference papers often leave the reader uncertain as to whose ideas are being presented and which problem is being addressed. As is perhaps the case with NFE efforts in general, the book offers a variety of valuable insights to anyone who perseveres in sorting out the content.

Although the editor has sometimes failed in his efforts to synthesize the content, one can nevertheless discern an intended progression of thought. The book begins with the "non-formal idea" and the concepts that form the justification for NFE and its relationship to development. It then presents four target groups most in need of NFE opportunities—children not in school, unemployed youth, adult illiterates, and women and girls—with project case studies for each. This leads to a discussion of some of the methodological and pedagogical approaches and issues that characterize NFE programs, then to three contrasting approaches to evaluation and research—traditional, action, and participatory—and their relationship to NFE programs. The book then returns to the issues and problems involved in combining educational programs, both formal and non-formal, with effective development strategies in order to help "the poor" have greater control over their lives and resources. Four case studies describe in detail development projects in which an NFE component was an integrated part of the effort: the Family Development Programme in Malaysia; the Self-employed Women's Association of Ahmedabad; Nutrition Education in Bendel State, Nigeria; and the Buffalo Breeders of Bankhedi, India. The final sections discuss the issues surrounding local, national, and international cooperation and coordination of NFE programs that contribute to development goals.

Among the numerous perspectives and issues contained in the book, four deserve particular mention here. First, throughout the book, attention is brought to the importance of the social, economic, and political context of NFE efforts so often neglected by educators as they become absorbed in technical, programmatic implementation problems. The words of conference participant Malcolm Adiseshiah summarize the issue: "No matter what term we use, non-formal education is people's power—the power to change society and make it move towards the paths of justice, tolerance, understanding, and charity." The struggle for social and economic justice as both the foundation and goal of NFE programs is woven effectively into each chapter.

Second, although claiming to establish the relationship between NFE and development, the book fails to provide a clear, sharp definition of development and to justify with concrete evidence the impact of NFE programs on development indicators. There is a tendency in the narrative to assume that NFE benefits such as participation, learning to learn, self-reliance, and problem solving are sufficient reflections of program success in the development process. Although these are critical elements of NFE, the book would be strengthened by an analysis of competing perspectives of the development process and by further evidence of NFE program impact on outcome indicators such as fertility rates, agricultural output, income increases, and employment results.

Third, because the book concerns a Commonwealth conference, NFE experiences in much of Latin America and francophone Africa are not included. Similarly, little attention is given to NFE program experience with various electronic communications media in development projects.

Fourth, and perhaps most important, is the book's concluding discussion of the coordination and support of NFE programs:

> What must now be attempted is to make something of a "system" out of existing NFE programmes—without losing the established non-formal virtues of flexibility and relevance to the needs of the mainly rural poor.

A paper by Chris Duke provides an excellent delineation of the key issues to be faced in attempting to bring more coherence and support to NFE programming. These recommendations closely parallel the present USAID strategy in NFE, that of helping LDCs to establish their own national service agencies capable of identifying, supporting, and improving diverse NFE development activities. Such projects are currently underway in Lesotho and Ecuador.

In sum, this book reads easily and maintains one's interest and will be of particular use to the NFE practitioner looking for information on a variety of NFE projects and techniques. For those uninitiated to NFE, and for NFE skeptics looking for a concise, coherent explication of NFE programs and their relationship to development, this book will be a disappointment. ■

Available from the Commonwealth Secretariat, Marborough House, Pall Mall, London SW1, U.K.

Reviewed by Dale E. Kinsley, education advisor and non-formal education specialist for the Office of Education, Development Support Bureau, Agency for International Development.

2 ***Images by Car Battery: The Filmstrip at Work,*** by David R. Giltrow (Rome: Food and Agriculture Organization of the United Nations, March 1979), 123 pp.

In 1978 and 1979, Giltrow was sent to the Yemen Arab Republic to evaluate FAO filmstrips in the field and determine their effectiveness as educational tools for farmer-level audiences. *Images by Car Battery: The Filmstrip at Work* is the result of those weeks in Yemen. One-fifth of the report is devoted to an overview of the filmstrip as an audiovisual tool and to the FAO Filmstrip Production Program. The body of the report describes

the procedures for and results of evaluating certain FAO filmstrips, the full evaluation design used during his visit, and simplified evaluation approaches for action research in the field.

As a practitioner, I appreciate Giltrow's ability to combine a structured approach with his own common sense observations, as it results in the report's containing many practical ideas and bits of advice. It is, for example, obviously good practice to begin evaluating ideas early on, before serious financial commitments are made and mistakes become locked in. The author suggests that rough scripts be worked up first as audio tapes that can be played to prospective audiences to determine which treatment will be more effective. The absence of the image at this experimental stage should not be detrimental, as most filmstrips rely heavily on the audio message. The author also suggests tape recording presentations in different areas of the country in order to compare usage techniques and the effects they may have on learning. In areas where farmers are not averse to being taped, it may be useful to record interviews with them for later analysis and comparison.

Centrally-produced filmstrips often need to be adapted to local conditions. Where changes are required only in the commentary, ample white space can be provided for translation in the commentary booklets that accompany the filmstrips. These commentary booklets themselves can often serve as valuable teaching aids. The author suggests supplying duplicate offset plates for local printing of booklets or handouts in quantity. This would allow the country to print booklets using either the FAO-produced commentary or an adapted version for local use, and to save time and money as well. Where filmstrip frames themselves need to be adapted, the author has suggested providing blank spaces so that words or symbols can be scratched directly onto the emulsion side. (Note: A special filmstrip adaptation kit is available from World Neighbors, 5116 N. Portland, Oklahoma City, Oklahoma 73112, U.S.A.)

I must take exception, however, to two of the author's ideas which I feel are consistent neither with a practical approach nor with the author's expressed "shift away from a purely FAO-centered orientation." Reprocessing a filmstrip in Rome with a traveling matte in order to correct the simple problem of a faded red warning dot seems overly complicated when a red felt pen would achieve the same result more simply in the field. And there is the author's suggestion of using geometric symbols in place of letters or numbers so as to make the filmstrips adaptable to countries with different alphabets. I first question the underlying assumption that nationalities will perceive the symbols universally in the same way. I then wonder about the wisdom of demanding that an audience learn a new system of symbols in order to understand the content of the filmstrips. Even illiterate audiences would have more to gain from learning their own alphabet, should that be necessary. But why not simply adapt the filmstrip using the approach suggested previously of scratching words and symbols in blank spaces on selected frames?

The author devotes some paragraphs to the question of testing certain pieces of audiovisual equipment, but nothing is said about its cost or availability, or about repair facilities. It is stated that nearly 100 percent of the Yemenites own radios and/or cassette players, but it would have been helpful to know about the availability and cost of batteries. I was disappointed that no mention was made of solar power or of alternative energy hardware. This may be no fault of the author, of course, but the title of the report does create the expectation of such innovative ideas. Rather than "Images by Car Battery," the subtitle more appropriately indicates the focus of the report: "An Assessment of the Filmstrip in Development Support Communications and an Evaluation of Assorted FAO Filmstrips Based on Field Work Conducted in the Yemen Arab Republic."

Although it represents an admirable effort, this report is of limited value to practitioners or planners outside of FAO. Quite simply, what is of value to the profession at large lies buried in the descriptive, chronological organization of the report and is too difficult to extract. Moreover, much of the information is already known or available in a more concise form in other publications. This is not to say, however, that FAO could not find its suggestions very helpful in considering future commitments to filmstrip production. ■

The report is available from the Development Support Communication Branch, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Reviewed by Benedict Tisa, a nonformal educational communications consultant

3 ***The New Miracle Workers.*** 16mm film, Helen Keller International, Inc., 14½ minutes, color.

Working with the blind in developing countries is the subject of a new film from Helen Keller International (HKI). The film, *The New Miracle Workers*, documents the work of a corps of health workers trained by HKI to help the blind master survival skills and to work to change traditional attitudes toward the blind. It also describes HKI's assistance to programs to prevent blindness through health and nutrition education, and to efforts to integrate the blind into their communities.

The film features two examples of media applied to the problem of blindness in the developing world. In one example, folk media are represented by a traveling puppet show in Indonesia that emphasizes the skills of the mind. The show's hero is a mythological king who, although blind, is a strong leader revered by virtue of his wisdom. The use of radio is exemplified by a segment from the *Radio Docteur* series on health and nutrition education in Haiti. A radio message impresses on mothers that vitamin A deficiency in their children can cause xerophthalmia, an eye inflammation which, untreated, can lead to blindness, and that vitamin A supplements are available at mobile health units. Communities are alerted to the arrival of the mobile unit by a loudspeaker announcement—another application of communication technology to serving the public good. ■

Available on loan within the United States from Modern Talking Pictures Service, 5000 Park Street North, St. Petersburg, Florida 33709. Others may contact Margaret Bayldon, Helen Keller International, Inc., 22 West 17th Street, New York, New York 10011, U.S.A.

4 ***Interview with George C. Stoney: Using Video for Community Development.*** Videocassette in ¾" U-Matic and Betamax X-1; also audiocassette only. 20 minutes, black and white.

For the communicator or community organizer familiar only with the mass media uses of broadcast-quality video, this videotaped interview with George C. Stoney, professor of film and television at New York University, will open a window to the potential of video as a tool for social motivation. Stoney identifies this "other" use of video as "communications to help people do something."

Building from a background in producing educational films to change behavior, Stoney took his skills some time ago to the National Film Board of Canada's Challenge for Change program, the purpose of which was to use film to improve social conditions. It was there that he became interested in the potential of video for similar purposes.

To illustrate this potential, Stoney describes a typical community situation in which two groups aligned on different sides of an issue cannot communicate publicly with each other, whether from shyness or other inhibiting factors. Small videotape equipment can be used to alleviate such a situation: a person's thoughts on the issue can be recorded, played back to him or her for accuracy, then played at a public meeting. This frequently has the effect not only of presenting the views of one who would not normally speak out, but of giving that person the courage to add to the taped comments in the public setting. In such a set-

(continued on page 10)

(continued from page 9)

ting, at the point where people begin to speak freely of their concerns, the use of video can be dispensed with. It has opened the necessary communication channels.

Another example Stoney gives is the use of video to document a physical condition requiring change. Video is a valuable tool in providing evidence to decision makers who would not normally visit the site in question.

Stoney discusses other issues such as the initial difficulty a community organizer may experience using this new tool, why and when to use it, its cost effectiveness, and the danger of overrating its ability to effect change. Stoney points out that simply knowing how others feel does not solve a problem; video can validate protest and support individuals who feel threatened, but it is only a device for initiating the processes of change. ■

Available on loan from International Educational Development, Inc., 815 Second Avenue, New York, New York 10017, U.S.A.

Films reviewed by Judy Brace

Publications to Note

A new publication, ***VER: Video Educativo Rural,*** is available from the Centro de Producción Audiovisual para la Capacitación (CEPAC), a UNDP/CENCIRA/FAO training center in Lima, Peru. The newsletter, produced in Spanish, is designed to present information on projects that use video for training adults. Two of four planned issues have appeared; audience response will determine whether the publication will be continued. For information write CEPAC, Apartado Postal 4480, Lima, Peru.

Health Education by Television and Radio: A Selected Bibliography, compiled by Manfred Meyer, et al. (Munich: Internationales Zentralinstitut für das Jugend- und Bildungsfernsehen, 1980), 75 pp.

This briefly annotated bibliography of 196 items was prepared for the participants in the Internationales Zentralinstitut's International Information Week 1980, on "Health Education by Television and Radio." The listings, mostly in English with a sprinkling of German and French, concern the use of the mass media for health education and for the dissemination of information on health problems. Annotations are in the form of a listing of relevant key words. Although the subject and author indexes add to the usefulness of the bibliography, it would be improved with the addition of a source listing with addresses to help readers obtain the listed documents.

Bibliography available from the Internationales Zentralinstitut für das Jugend- und Bildungsfernsehen, Rundfunkplatz 1, D-8000 München 2, Federal Republic of Germany.

Dear Aimee—

Someone to Answer Your Questions about Africa

by Jean-Marc Fleury

No matter who you are, or wherever you may be, if you want to know more about Africa, its philosophers, its cooperative agencies, or even how to raise rabbits there, someone is ready to help you. Her name is Aimée Adou, and she lives in Abidjan in the Ivory Coast.

All kinds of peope write to Aimée. An elementary-school pupil asked her, "What is dirt made of?" A teacher wanted information on building a pigpen and raising pigs. Many of those who write are teachers and students—but there are also mechanics, postmen, and farmers. In 1979 Aimée answered 211 letters from 17 African countries and several Western nations. Many African students in Europe also wrote to her.

When the questions are clear and to the point she replies the same day. But some letters require more research; for example, that of a teacher from Togo who asked, "Could you provide me with a list of African authors and philosophers and the titles of a few of their works?" Aimée's reply consisted of photocopies of documents, a page of bibliographical references, and 11 solid pages of names of African philosophers and their works. Some questions might call for whole theses in answer.

Most of the questions deal with some aspect of individual or collective development, and Aimée tries to provide prompt, practical answers. Sometimes, however, the letters contain very tricky questions, such as one received the day of our visit, "Of the United States and the USSR, whose policies are appreciated more in Africa, and why?"

As you may have guessed, Aimée Adou does not have all the answers herself. She is a member of the Permanent Question/Answer Service team, part of the African Institute for Economic and Social Development (INADES) in Abidjan. When the service was created, with the aid of funds from the International Development Research Centre (IDRC), INADES wanted to make available to *everyone*, not just to researchers and academics, the vast resources of its library, one of the richest stores of information on Africa in all of francophone Africa.

Even before the service was created in 1977, INADES received some 50 requests a year for information. When it realized the lack of readily available information about Africa, the institute sought to provide an information service accessible to anyone who could write a letter.

"The service is an experiment," says Mr. E. de Rosny, Director of INADES, "intended to encourage people to write down their questions. Everyone agrees that African society has always been one of communication," he explains, "but oral communication is no longer enough. Hence the importance of the transition from oral to written expression. There are many ways of doing this: school is the most obvious. The information service makes another modest contribution."

At INADES it is hoped that this transition from speaking to writing will be done in a human way. In school, people are obliged to learn to write, but this service gives people the opportunity to use their new skills willingly. "The unemployed worker in Treichville (a part of Abidjan), who one day picks up his pen to ask us how to become an electrician: that man has made the transition to the modern world," says Mr. de Rosny.

Unemployed, civil servant, or scholar, all will find through the service someone ready to help them plug into the knowledge needed for informed action. With Aimée are Jeannette M'Bengue, a specialist in agricultural information, and Nicole Vial, the service's director. They can also rely on the assistance of the INADES librarians, researchers, and secretaries.

The service team also provides rural project leaders with suitcases of books on agriculture, history, or health, along with novels and magazines to be read just for fun. About a dozen of these small suitcase libraries crisscross Africa. In January 1980, 10 were in circulation.

Theoretically, anyone who can write a letter can use the service, but first people must be aware that it exists. This is the main challenge facing the team: making themselves known. So far magazines, newspapers, and radio stations have agreed to publicize the service. A magazine has undertaken to publish two sample questions and answers on a regular basis. But a great many more people must be reached if the service is to function as it should.

The extraordinary thing about a medium such as the Permanent Question/Answer Service is that the questions themselves contribute to the quality and the efficiency of the service. Aimée keeps a record of each question received and is gradually assembling a bank of information on those most often asked, anticipating areas of popular interest. Thus, your letter will be useful not only to you but to many other clients.

Any more questions? Ask Aimée! Her address is SPQR, INADES/Documentation, B.P. 8008, Abidjan, Ivory Coast. ■

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(continued from page 2)

cooperation between various support services so field technicians can have needed input for integrated projects.

Forestry service goals and rewards may also have to change. Goals such as straight rows of tall exotic trees must give way to emphasis on community participation, even if the rows are not quite so straight nor the trees so beautifully planted. Technicians have a right to expect personal benefits from successfully implementing this new type of forestry. They have the right to have their formal and academic training and rigid pay structure reexamined in light of this new type of forestry. Agents who take specialized training in community forestry and who work in the field to implement successful projects should receive merit pay raises.

On the other hand, donors and villagers have the right to expect a new focus by foresters on developing appropriate low-cost technical packages. Donors and villagers have a right to expect needed management skills and supports from foresters, extension personnel, or project managers. If extension personnel are used, they may need training in the two-way communication expected in FLCD, as many extension services in Africa concentrate on teaching roles rather than facilitating roles and might tend to present programs to villagers rather than develop programs with villagers.

Donor Expectations and Obligations

Donors also have new expectations and obligations when they participate in this type of approach to forestry. They may expect more active participation from both villagers and technicians, more and better designed project proposals, and more successfully completed forestry projects.

On the other hand, they will have to be willing to fund the less glamorous support and institution-building required by this new approach. They will have to reassess the goals of their projects and be willing to support more small experimental projects before embarking on large-scale showcase demonstrations. They will have to accept flexibility built into project design, and designs that differ village by village and are therefore more difficult to administer.

Project Management Agreements

Project experience has made it clear that there is a lack of communication, a great deal of frustration, and much confusion about responsibilities by all parties involved in forestry projects. In line with FLCD philosophy, responsibilities and duties of citizens and support agencies should be clear from the beginning of any project. One way of approaching this problem is through a management plan discussed, agreed upon, and signed by all those involved. This agreement, written as part of the project design, will involve local participation and lead to better communication and better planning. Most of the projects that fail do so because one or more of the following six elements were unclear when the project began:

- identification of participants
- long- and short-range goals
- site selection
- start-up and maintenance plan
- benefit distribution plan
- evaluation plan with feedback and flexibility potential for changing the program.

A written project management agreement could help clarify these project elements at the design stage. The importance of this type of document would increase with the size and complexity of the program, but these six items should be considered even if the project is carried on by individuals on their own land. The format and semantics will vary depending upon the country, the agencies involved, the local administrative structure, and the desires of the participants.

Several types of contracts have been used in community development or production projects. One which has been used in Latin America is in the form of an application for a community service award. Applicants outline elements of their proposed project in a few sentences, listing all participants, and if the application is approved, the award is given at completion of the project. A second type is used in Senegal by a production-marketing organization. This is a contract between a group of farmers and the organization, whereby farmers agree to grow certain irrigated crops according to directives of the organization, maintain the irrigation ditches, and sell all their surplus produce to the organization. The organization, on the other hand, agrees to give them technical advice, sell them needed fertilizer or other inputs, and lend them an irrigation pump. All members of the group are responsible for debts of any members, and if the farmers default in any way, the organization will remove the pump. Although this is clearly an "employer" biased contract, it does make the requirements of the participants clear. One observer found that the contract stimulated discussion among community members and acted as a medium for community awareness and participation.

An agreement or contract more applicable to FLCD projects is used in the Uttar Pradesh Social Forestry project in India. Called a "Proforma Agreement for Village Forests," it is written in formats for either forestry service plantations or village plantations. It gives a seven-page description of the purpose of the project, requiring only that several blanks be filled in with such information as number of days of voluntary labor villagers agree to provide and the amounts of land donated by the government and by the village. Villagers agree to pay for forestry service inputs but are guaranteed firewood and any profits beyond these costs. This contract requires that a mutually acceptable operational and financial plan be attached. The agreement is specifically designed for one type of forestry project and has proved to be successful because it is tailored for a specific area where there is strong community organization with a long-standing plan of voluntary community service.

Fuelwood Transformation

Thus far our discussion of FLCD projects has focused on production. The next step after wood is produced is transforming it from a tree to usable fuel with as little waste as possible. Not much attention has been paid to examining this step, yet fuelwood production is only as effective as the amount of fuel that arrives at the hearth and the amount of food it cooks. Transformation issues include more efficient harvesting, charcoal making, transportation, and drying and storage.

Traditionally, most fuelwood is collected for the family by women breaking dead branches from trees. Men help in some areas where larger logs are used for fires, and where women have used all locally available branches so that wood must be brought from greater distances. When dead wood is no longer available, trees may be killed by girdling, by chemicals, or by fire made selectively by piling branches around the base of a selected tree or less selectively by burning larger forested areas. As pressures increase, women substitute millet stalks, peanut hulls, dung, or other agriculture products that have important alternative uses, or they may even use saplings or fresh branches from fruit- or nut-bearing trees.

Even the traditional collection of dead branches wastes potential fuel, as the logs are frequently left to rot before they can be hacked into usable pieces with locally made hatchets. The burning and use of saplings or green wood further reduces the potential energy supply. Donors have suggested that commercial harvesting should be encouraged

(continued on page 12)

> ***"People themselves are the agents of processes of change, and therefore the participation of people cannot simply be seen as an element of development, or an option open to development planners, but must be recognized as a condition for development."***
>
> Jeremiah O'Sullivan-Ryan

(continued from page 11)

to salvage trees from dam sites or other land being cleared. This could be extended to salvage wood from less inhabited areas where dead trees from drought are still visible in large quantities. Reports from Nigeria, Sudan, Kenya, and Upper Volta discuss various commercial enterprises that collect and transport wood, ranging from the Voltaic example of women collecting wood and selling it to truckers, to the Sudanese example of armed landless gangs stealing trees and leaving large regions denuded. Some of these examples illustrate the need for care in introducing more high-powered tools for harvesting and in organizing cooperative or other commercial ventures so as to assure protection of the people living in the area to be salvaged.

Dealing with such issues is not simple. Adequate solutions require regional and national planning of resources, fiscal policy, and marketing systems, and the development of local projects within these plans. For example, although Ivory Coast officials may be willing to allow residents from neighboring wood-hungry regions to salvage trees from newly cleared agricultural lands, they may at the same time need to address the issue of their own disappearing forest reserves. Although Kenyan officials may want to subsidize imported fuel while they control the price of wood and charcoal, they will want to control the smuggling of wood into neighboring countries before large areas of their country are denuded.

The idea of organizing harvesting cooperatives to salvage unused wood is excellent, as is the introduction of more efficient charcoal making. However, new technology and organizational structures for marketing wood in large quantities must be conceived not only with the good of the workers and consumers of wood in mind, but also with respect to local custom in order not to put residents of the area where the wood is salvaged at risk.

Basic to all of these considerations is transportation. Much of the wood currently going to waste is in areas where transportation expenses are quite high or where no adequate system exists to remove the wood. Governments should seriously weigh the cost of subsidizing transportation of wood, especially as a temporary measure to take the pressure off of newly planted woodlots or overly exploited lands. Energy considerations should be basic to any transportation planning, not only in evaluating energy use in water, rail, or road transportation systems, but also as to ways of transporting available wood, charcoal, or other energy-producing materials. Funding improved transport systems may be of more long-term benefit than subsidizing imported oil-based fuel, and temporarily subsidizing transportation costs of fuelwood may be essential to reforestation efforts.

Fuelwood Use

Although planting trees is important for future wood supplies, the introduction of fuel-saving stoves can have an immediate impact on available fuel. To date, however, there has been relatively little donor interest in wood stove improvement in Africa, and stoves that have been tried have had negligible success. Through the years African women have found the three-stone stove or other modifications of the open fireplace to be the most appropriate technology for cooking their daily meals. If "appropriate" technology means technology that best satisfies the need in a way that is economically and socially affordable, alternative stove designs have thus far fallen short.

In order to apply the FLCD approach to the introduction of stoves, it is important to isolate some of the problems that have handicapped the adoption of fuel-saving stoves. Many reports simply say that new technology must be taught, that extension services have been ineffective in selling the new ideas, and that traditions die hard. But these criticisms tend to focus on the dissemination stage of a project, which all too frequently takes place before the experimental process has been completed. Many projects appear to be weak in four fundamental elements in the original stove designing process: failure to identify actors and their roles in developing stove designs, failure to establish criteria for introduction, failure to identify physical and social reality and the tradeoffs and risks of each change, and failure to establish effective criteria for evaluating "success."

If stoves were being designed for researchers in laboratories, there would already be many stoves that successfully fulfill all artistic and technical requirements. The researchers sometimes forget, however, that the primary actor, the audience that ultimately approves or disapproves the design, is the person with the greatest expertise—the woman who cooks every day. It is a major failing of researchers not to recognize the cook as an essential part of the cast of research experts. The second group of individuals who should evaluate and participate in the successful adoption of a stove design are the women leaders, the extension agents, and sometimes local officials —the essential salesmen and the judges of a successful model. A third group who may be involved are the local artisans. If a stove design requires metal work, masonry, or changes in sizes or shapes of utensils, it may be up to the local craftsmen to help design these changes within local capabilities and be ready to make repairs and alterations. They can also provide valuable information that is frequently missing in developing stove models.

When stoves that fit laboratory or Western standards of improvement are brought to Africa, they frequently lack the bare minimum of usefulness in the African setting. Before a design leaves the laboratory, it should be tested for its basic utility for specific areas. If it cannot hold the heavy pots, cook hard grains into mush for lengthy cooking periods, or perform the basic requirements for a certain locality, it should not even be introduced—a self-evident requirement that is frequently ignored.

Solar cooker specialists have been even less socially aware than wood stove technicians in their requests that women stand over pots stirring slow-cooking foods on stoves that are uncomfortably hot even to approach in the African sun, or that take one and one-half hours to cook a soft-boiled egg. They suggest that women can easily cook in the daytime instead of the evening, without noticing that during the day the women are working in the fields and need that time to grow the grain to fill the pot. However, wood energy specialists, too, would save a great deal of grief if they looked at the purposes for which the three-stone stove is used. If they had tried cooking in one-and-one-half-foot-tall kettles, constantly stirring mush for ten people with a large wooden paddle, they would not suggest waist-high wood stoves (unless they also added step-stools), flat-bottomed pans (that burn around the edges), and lids (for foods requiring constant stirring). One report chided a woman for using a stove in a wrong and wasteful manner because she left the front open for heat in the room while she cooked on the top. Since the need in that community was for heat as well as cooking, the stove was not being wrongly used, it was simply the wrong stove.

The realities of the physical elements—the type of wood (size and shape), the size of the pot or pots (not just how many people are in the family, as the situation may require extra for unexpected guests or leftovers for breakfast), the stove or stoves used now, the food to be cooked, the process used, the place and time cooking is done—are all elements of the situation that should be known. Each time a physical element is changed, one or more social elements may be affected. For example, in a stove evaluation in Ghana, the stove required larger pieces of wood. The women who collected the wood were not willing to walk the extra distance for this type of wood when there were adequate pieces of wood for a traditional fire nearby. This, then, is a tradeoff, and one that these women were not willing to make. When introducing a potential stove design, the researchers should explore with other actors in the experimental group all of the elements that can change and the resulting tradeoffs and risks. Will the women want to use the stove when the local supply of smaller wood is gone and all fuel is the same distance away?

One frequently hears questions such as,

(continued on page 13)

(continued from page 12)

"If you had a stove that used only one-half the fuel you currently use, would you cook on it?" This is not the real question. The question might more accurately be, "If you had a stove that used less fuel, would you be willing to chop your wood into eight-inch lengths, control the damper, and clean the flue?" Technicians are not in a position to evaluate these types of tradeoffs. Only if the woman is given the necessary information will she be able to make an accurate evaluation of a new stove's potential for adoption. Any time a new technology is introduced, questions such as who benefits, how, who pays, who maintains, and who introduces should be considered.

Criteria for Stove Success

One of the issues connected with all projects is that of knowing when something is successful. In FLCD terms, success relates to local people solving their problems in a way that gives them more control over their environment. It has nothing to do with the amount of energy produced in a laboratory. A cookstove is successful when it is established in a community, cooking one or more types of locally consumed food. If it solves a felt need in a way that is economically and socially affordable, it will be adopted and its use will spread.

Throughout a large part of Africa, one sees stoves used for charcoal. How is it that charcoal stoves have caught on where wood stoves have not? One could guess that since charcoal is more expensive, the women using it can afford a stove, or want to make the charcoal go further by using a stove. However, when cooking large pots of traditional slow-cooking foods, the same women who use charcoal stoves for smaller, more quickly cooked dishes will often still turn to the three-stone fire. The charcoal stove fulfills some but not all needs.

Again, although the three-stone stove is used as a symbol of a united family, this emotional factor has not stopped women from using alternative fireplaces for specific purposes. They also alter the three-stone fireplace by putting rocks or earth between two of the stones when there is wind. Women *are* willing to experiment with new stoves. If a stove really saves up to one-half of the daily fuel or more and does not require undesirable tradeoffs, what woman would choose the extra hours of hauling wood?

Demonstration and Dissemination

When it is time to launch the dissemination process, one approach the evaluation team may wish to consider is staging a village celebration. Neighboring villagers could be invited, and the project could provide food prepared using the newly designed stoves, with the women who helped develop the stove demonstrating its use. This is the time for photographers and radio discussions, the time for trained extension agents to help advise more women on building and using these stoves, the time when women who cooked on the stoves during the experimental phase might become paid para-extension agents for neighboring villages.

Another approach to dissemination of stoves comes from Swaziland. Women were brought into a training center to learn to make several appropriate technology items, including clay cook-stoves. At the end of their training, when they had completed the models, village chiefs were asked to come to a ceremony to judge which of the items the women had made would be most useful in their villages. The chiefs in this case chose the stove as one of the most useful and agreed to help support its introduction into the villages.

Unless the government decides on a fiscal policy in which metal stove burners or other parts will be subsidized, the donor would not ordinarily continue paying for materials for building stoves. The stoves are either worth the investment to the local family or they are not. However, during the dissemination phase, the donor should do whatever is necessary to support publicity, educational materials, needed transportation or training, or even salaries to help get technical information to local women. Schools, women's groups, private voluntary organizations, and volunteers could all help spread information. If there is a decision to subsidize the building of more stoves, one idea is to tie the subsidy to fuelwood production. When women plant a certain number of trees which they keep alive for a year, they could be given grills for stoves as a prize.

The emphasis here on improving wood stoves does not suggest that other approaches should not also be tried to conserve wood. There is a need to explore the use of alternate foods or processes that require less energy. In some communities, group cooking might be a solution, or foods preprocessed in a village-level industry might be investigated. In Upper Volta, a traditional practice is to soak and then precook rice before husking it, a practice that not only cuts down on the time for final cooking but improves the nutritional value of the rice. None of these ideas, however, should be explored only in an isolated laboratory; the true evaluation of the acceptability and success of any such idea must be made by the consumers themselves.

Conclusion

This has been an exploration of issues raised when residents are included in the effort to solve local fuelwood needs through forestry for local community development programs. It does not intend to suggest that this is an easy approach, but it is based on the premise that since top-down forestry is not working, FLCD may be the only viable option. It has looked at various problems that donors, implementers, and participants raise, and at possible approaches to program design that mitigate some of these problems.

It is always important to keep in mind the distinction between experimentation and dissemination-demonstration. Methodology for implementing FLCD is new, and judging from problems raised at all levels, it is still in the experimental stage. Ideas are not offered here as proven solutions but to stimulate discussion while the search continues for better techniques in a field that is controversial, urgent, and exciting. It is written in the belief that only as one shares experiences, tries out new ideas, and documents failure and success can one hope to deal more effectively with the issues and eventually to reach the demonstration-dissemination stage.

Forestry has been one of the last fields to use the community development approach. As a sound environment and the availability of forest products are vital to agricultural, industry, and life itself, FLCD is potentially of great use to community residents. By improving FLCD impact in the communities of Africa, forestry may become the basis for revitalizing rural communities and a tool with which residents can direct and control their own futures. ■

This article is excerpted from a discussion paper prepared by the author under the auspices of the Overseas Development Council and the U.S. Agency for International Development for a Workshop on Fuelwood and Other Renewable Fuels in Africa, held in Paris, November 1979. For information contact Marilyn W. Hoskins, Department of Sociology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061, U.S.A.

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- Kaye, A. R. ***The Allama Iqbal Open University, Pakistan. A Case Study in Distance Learning Systems.*** Bletchley, Bucks, England: The Open University, 1978, 33 pp. (ED 183 035)

A brief description of Pakistan and its educational system introduces this report on the Allama Iqbal Open University (AIOU), which was established in Islamabad by the Pakistani government primarily to provide adult and continuing education through the mass media. Brief descriptions are given of AIOU's history and operation, as well as its policy and legal origins; intended clientele; curriculum offerings and organization; media and methods of instruction; course creation, production, and distribution; student admission, registration, and records; financial control; institutional research; and staff and physical facilities. Available from EDRS in microfiche for 83¢ or in paper copy for $3.32 plus shipping.

- Jerez Gomez, Maximo J. ***Background on Non-Formal Education and Suggestions for the Improvement of Non-Formal Education in Developing Countries and the Dominican Republic.*** 1979, 12 pp. (ED 186 169)

Divided into two areas of emphasis, this paper explores the potential of nonformal education in developing countries and as it relates to the Dominican Republic. The first section presents background material and discusses types of programs being applied in a number of countries throughout the world. Much of the second section is based on the author's observations and experience during three years with the Extension Service of the Dominican Republic. The structure and function of each level of the Extension Service are described. The paper concludes with suggestions for the improvement of nonformal education, such as: 1) preliminary evaluation should be conducted to determine specific community needs; 2) the community should select its own development program, course, or project, as well as program leader; and 3) radio, television, written materials, songs, or theater should be used in the program in order to maintain the attention and interest of participants. Available from EDRS in microfiche for 83¢ or in paper copy for $1.82 plus shipping.

- Seligman, David. ***The Everyman's University, Israel. A Case Study in Distance Learning Systems.*** Bletchley, Bucks, England: The Open University, 1979, 71 pp. (ED 183 037)

A brief description of Israel and its educational system provide background information for this report on Everyman's University, which is a nontraditional institution offering postsecondary education by extension to a nontraditional college population. This overview of its history, purposes, organization, academic offerings, and resources covers origins; intended clientele; entry qualifications; degree programs; media and methods of instruction (correspondence study, television, radio, audiocassettes, home experiment kits, syllabi, and study centers); financial aid; assessment and examination models and procedures, including special instructions on the awarding of credit; institutional organization and administration; academic, financial, and policy control mechanisms; staff and budget; and plans for development. Appendices provide data on registration, persistence, and organizational charts. Available from EDRS in microfiche for 83¢ or paper copy for $4.82 plus shipping.

- Greiner, Ted and Latham, Michael E., eds. ***The Promotion of Bottle Feeding by Multinational Corporations: How Advertising and the Health Professions Have Contributed. Cornell International Nutrition Monograph Series, Number 2 (1975).*** Ithaca, NY: State University of New York, Nutritional Sciences Division at Cornell University, 1975. 62 pp. (ED 188 749)

This report investigating the ways bottle feeding of infants has been promoted by multinational corporations is based on data from three sources: 1) a survey of available infant food advertising in newspapers and magazines from developing countries; 2) a study of some interrelationships between the health professions and infant food companies, including a study of advertising in professional journals, and an analysis of educational publications written by infant food companies for distribution to the public, largely via the health professional; and 3) a compilation of data on multinational companies that market infant foods. An extensive discussion of the findings is provided for use by those who are concerned with the problem.

Appendices provide samples of infant food advertisements from publications in developing countries directed toward the lay public, as well as advertisements from journals for health professionals and information about world manufacturers of processed dairy products used for infant feeding, including parent corporation, subsidiaries, infant food marketed, areas of heaviest marketing, and addresses. Available from Dr. Michael C. Latham, Division of Nutritional Sciences, Savage Hall, Cornell University, Ithaca, NY 14853, U.S.A. for $2.50 (make checks payable to Cornell University), or from EDRS in microfiche for 83¢ or paper copy for $4.82 plus shipping.

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(continued from page 4)

the industrialized world necessarily more valid than more simple techniques.

> As a rule, simplicity, honesty, and diversity should be stressed. . . . Diversity in method has been a little-used means of increasing the amount and quality of information. Wherever and whenever possible, a combination of the three approaches (asking questions, observing, and listening) should be used.[4]

The purpose of sociocultural data gathering, particularly at the local village level, is to get people to talk—not simply to answer arbitrary questions about predefined specific categories of information. The gathering of data about sociocultural factors and materials required by engineers and planners is an important part of the educational process for everyone involved. Not only do community members learn data-gathering techniques, but they also learn a great deal about their own community, its problems, and possible solutions. Through this process, engineers and other outsiders can get data on perceived and actual situations and on possible reactions to alternatives. This data gathering is probably the single most important phase for establishing a dialogue between community residents and development agency personnel and for stimulating community involvement, as researchers and researched seek to understand the human dimensions of their problems.

1. David Hughart, *Prospects for Traditional and Non-Conventional Energy Sources in Developing Countries*, World Bank Staff Working Paper No. 346 (Washington, D.C.: The World Bank, 1979).

2. Elizabeth Cecelski and Joy Dunkerley, *Energy Use in the Rural and Urban Household Sectors of Developing Countries: An Assessment* (Washington, D.C.: Resources for the Future, 1980), p. 27.

3. Anne Whyte, *Guidelines for Field Studies in Environmental Perception*, MAB Technical Notes (Paris: UNESCO, 1977).

4. Mary Elmendorf and P. Buckles, *Socio-Cultural Aspects of Water Supply and Excreta Disposal*, P.U. Report No. RES 15 (Washington, D.C.: The World Bank, 1978).

5. Dennis Wood, D. Brokensh, et al., *Fuelwood Use and Rural Community Fuelwood Programs* (Washington, D.C.: DEVRES, 1980).

6. Whyte, op cit.

This article was excerpted from a paper presented at the International Workshop on Energy Survey Methodologies, conducted by the National Academy of Sciences at Jekyll Island, Georgia, January 1980.

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(continued from page 7)

animators has been less of a success. An animator is basically one who uses group dynamics to motivate a group, and who encourages the group to innovate, to organize, and to initiate change. In many ways the production and use of media goes hand in hand with the work of the animators. The animators must possess the requisite skills, not only in interpersonal communication, but also in using basic media (handling an audiovisual, for example, or conducting a photo discussion), and in conducting surveys. Animators should also have a suitable background knowledge of social and political affairs.

ASTHA has been progressively reducing the number of its animators, trying to insure quality and to concentrate in depth in certain areas rather than spreading its resources too thin. In order to improve the quality of the animators, ASTHA sent several of them for a training course conducted by Nirmala Niketan College of Social Work, then ran a special workshop itself. Much of the experience gained in this process went into putting together an Animator's Kit, with sections on communications skills, media samples, and background papers. A revised Animator's Kit is now being produced.

At this point, ASTHA has come to realize the value of doing thorough research and evaluation of what it has produced. The plan is for the organization to invest a larger portion of its resources in such efforts, applying the lessons it learns to the improvement of its programs so that it can attain and maintain a high level of quality in all aspects of its work. ■

This article is excerpted from a report by Myron J. Pereira, director of ASTHA, in the September 1980 issue of Concern, *the news bulletin of the Adult Education Project, Xavier Institute of Communications, Mahapalika Marg, Bombay 400 001, India.*

Graphic Thoughts

by Lucille B. DeSantis and Dennis W. Pett

An effective exhibit is usually a combination of several media—real objects, models, handouts, and a person to answer questions. Basic to all exhibits, however, is a display that will attract attention. Two effective display techniques are the rope display and the pole display. Both are easy to construct and conveniently portable.

Rope displays are particularly simple to set up and can be very attractive. Ropes can be stretched from floor to ceiling, or rope loops can be hung from a tree branch or a pole frame out of doors. A pole inserted in the bottom of the loops holds them in place. Pictures, posters, handouts, or other materials can be fastened to the ropes with pins or string. (Figure 1)

Pole displays are particularly useful when a display must be moved frequently to new locations. If the display is not likely to be bumped, the poles can be free standing, but for stability the poles should be pushed into the ground. Display boards made of thin, lightweight plywood can be tied to the poles with rope. Inexpensive woven mats can be substituted for the plywood if the poles are stable. Materials can be attached to the plywood with tape or small nails, or to mats with pins or string. (Figure 2)

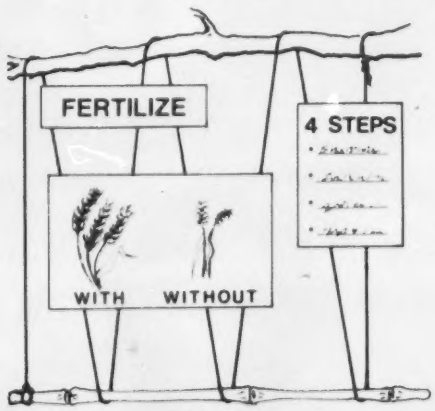

Figure 1

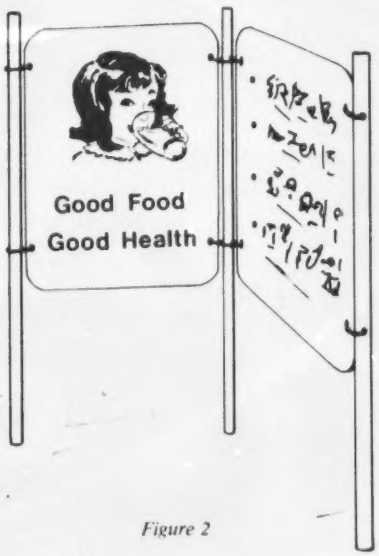

Figure 2

A few simple rules govern any display:

- Be certain your display is located in a place where it will be seen by your audience.
- Use eye-catching visuals that are familiar to, relevant to, and understood by your audience.
- Use few words and be certain they are simple and large enough to be read easily.

Lucille B. DeSantis is a media consultant with AudioVisual Resources, 19 Amherst Road, Berlin, New Jersey 08009, U.S.A. Dennis W. Pett is director of instructional services for the Audio-Visual Center, Indiana University, Bloomington, Indiana 47405, U.S.A.

Course on Communication Planning

Cornell University is offering again this year a three-week course on communication planning and strategy, designed especially for policy level officials in government and non-government agencies who have responsibility for programs in health, nutrition, and agriculture in rural development. The course emphasizes how to organize and mobilize communication resources in support of other program activities. Among the topics covered are communication planning, media selection, message design, evaluation, organizing communication units, and mobilizing communication resources.

Tuition for the course is U.S. $650.00, and housing and meal expenses will be approximately U.S. $650.00. Enrollment is limited to 30, and interested persons are urged to apply as soon as possible. A registration fee of U.S. $25.00 should be sent with the application. Those accepted in the program will be notified by cable, and course materials will be sent in advance. No fellowships are available from Cornell University for the course. Inquiries or applications should be addressed to Dr. Royal D. Colle, Director CPS-81, Department of Communication Arts, Cornell University, 640 Stewart Avenue, Ithaca, New York 14850, U.S.A.

Mobile Printing Press

A Micro Mobile Printing Unit – a printing press in a van – has been donated to UNESCO for use in producing rural newspapers in Kenya. The van, a gift from the International Federation of Newspaper Publishers, will be used to expand the rural press in Kericho district, northwest of Nairobi, and the Kwale district, near Mombasa.

When the van arrives in a village, members of its team talk with the local people and take photographs. Then the team processes the news and prints the newspaper, all within a few hours. In this way, the village has its own newspaper, complete with headlines and pictures, in a part of the world where newspapers are traditionally a big-city luxury.

The van is equipped with a new type of tabletop offset press, typewriters with various type faces, a printing plate-maker, a generator, and a mini-darkroom for developing, enlarging, and printing photographs. Permanent newspaper facilities are to be built later, following the van's pioneering work.

The van was designed by the Netherlands' Graphic Media Development Centre, and the UNESCO project to develop the rural press in Kenya is being carried out with funds provided by the Federal Republic of Germany.

(From *UNESCO Features,* as printed in *Development Forum,* July-August 1980)

Dilemmas in Country X: Candid Discussions about Failures

The editor invites readers of DCR to contribute "dilemmas"—descriptions of the problems they have encountered in their own projects that might contain useful lessons for other development workers. Authors, projects, and countries can go unnamed if the author so requests.

Charcoal making is a subject on which there is much controversy. On one hand, the process of turning wood into charcoal uses energy. On the other hand, charcoal may be a more energy-efficient fuel than wood because it is usually burned in stoves rather than open fireplaces. A more complete analysis also shows that there is an energy cost in transportation, and that, depending on the area and the mode of transportation, there is a point where the energy cost of transporting heavy and bulky wood from the wood source to the end user is greater than the energy cost of making charcoal at the site of the wood source. (Taken a step further, of course, there is a point at which the amount of energy used to transport the wood in whatever form would exceed the amount of energy produced by the fuel for the end user.)

A number of reports have stressed that, in areas where charcoal is made, improved techniques of charcoal production can reduce waste. Savings can be achieved not only through more complete use of trees, including sawdust and oddly shaped pieces of wood, but through more efficient techniques of charring the wood and through decreasing the number of accidents caused by kiln cave-ins and explosions.

If making charcoal more productively is to be an effective local project, however, it has to follow the rules for community development by starting with local participation from the beginning. In many parts of Africa, charcoal is made only by a specific group of people, working within longstanding organizational structures. These structures must be understood thoroughly before changes can be introduced productively.

One charcoal project designed to change local behavior in an African country aroused a great deal of antagonism and failed to gain local support. It was designed as a two-step experimental program. The first step was to develop a less wasteful charcoal technology. The second step was to form cooperatives of charcoal makers, reducing or eliminating the number of middlemen, and making sure the cooperatives would employ sound energy conservation techniques.

The project designer began his program, with the support of the forestry service, by:

1. issuing licenses to limit the number of charcoal middlemen who hire charcoal makers and who control the transport and sale of charcoal;

2. limiting the number of charcoal makers who can work under each middleman; and

3. restricting the area in which wood can be collected.

This cut down on the amount of wood being used to make charcoal; it also put several hundred local people out of work. The project director then re-hired a few of the charcoal makers to help in experimenting with old versus new technique of making charcoal. The charcoal produced in these experiments was sold on the market at a subsidized price, thereby underselling the traditional vendors.

During the experiments, a technician designed a kiln that is not as expensive as many kilns, accommodates pieces of wood of various sizes, and makes charcoal more efficiently. The project director wrote an evaluation report stating that the technical stage of the project had been successfully completed, and that they were ready to start the second stage, that of disseminating the technology.

It is obvious that the designers of this project conducted no adequate study to help them understand the social realities of the project site. They had little or no understanding of the positive or negative roles of the middlemen, their relationship with charcoal makers, the traditional organization of the charcoal makers themselves, or the perceived need for a new technology. Charcoal makers had not felt the pressure of a limited wood supply until prohibitions on wood gathering were introduced in connection with the project, and then they perceived the limit as an arbitrarily imposed restriction on their economic freedom.

In terms of the technology, even if the new kiln design were cheaper than many others, the traditional way of making charcoal under a mound of clay involves no investment whatsoever and calls for no fixed equipment, thus charcoal can be made wherever wood is gathered.

Local residents discussing this project report that many middlemen and charcoal makers who were put out of work by the project's licensing procedure are angry at the project, and that several have started forest fires in the protected areas. Even those who have licenses are angered at having to compete against project-subsidized charcoal. Thus, although the technical aspects of the project may have seemed successful to the director, there was little community support for or participation in the project, the new technology had little connection to the social reality, and the likelihood of an overall positive outcome seems doubtful. ■

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